

**CONDITIONAL PETITION FOR EXTENSION OF TIME**

If any extension of time for this response is required, Applicants request that this be considered a petition therefore. Please charge the required fee to Deposit Account No. 14-1263.

**ADDITIONAL FEES**

Please charge any further insufficiency of fees, or credit any excess to Deposit Account No. 14-1263.

**REMARKS**

Claims 9-21 are pending in the application. All claims have been rejected under various statutory provisions.

Claims 9-10, and 12-16, and 19-21 have been amended. Claim 11 has been canceled. It is believed that the amendments and the ensuing remarks overcome the rejections.

The amendments raise no new matter, nor issues that would require further searching of the prior art. In addition, the thrust of the amendments derive in large part from Examiner's comments and adopt various implied suggestions.

Further, Applicants and the undersigned, respectfully assert their *bona fide* belief that the claims are now in condition for allowance.

The rejections will be discussed in the sequence in which they appear in the office action.

**New Matter**

Examiner apparently believes that various phrases in new claims 9, 11 and 21 constitute new matter because they are not adequately supported by the specification and original claims.

Applicants believe that the foregoing amendments and the following remarks overcome these rejections.

**Claims 9, 21**

The phrase "at least one carbon-containing compound" has been deemed new matter. This phrase has been deleted from the newly amended claim. Claims 9 and 21 have been amended to recite "*an aqueous leaching fluid consisting of at least one sulfur-containing amino acid....*" Support for this can be found at page 3, first paragraph; and original claim 1, and Example 2.

Examiner asserts that the phrase "*homocysteine, and derivatives thereof*" constitutes new matter. Examiner has indicated that support can be found only for the amides and esters of homocysteine. The claim has been amended to limit the claim to the amides and esters.

Claims 9 and 21 were rejected because the phrase "*Optionally, one or more salts*" allegedly constitutes new matter. Applicants respectfully request that Examiner reconsider this rejection in view of the following:

- Support for the addition of salts can be found on page 3, 3rd paragraph;
- Adding salts is exemplified on page 6, 1st paragraph;
- Original claim 5 discloses adjusting the final pH, wherein said adjustment is performed by addition of a buffering salt solution; see top page 6. The *optional* aspect would be appreciated by those in art because the pH of the unbuffered composition will depend on which amino acid[s] are added, and at what concentration. Accordingly, the need to adjust the pH may or may not arise.

It is respectfully suggested that persons of ordinary skill will clearly understand the specification's disclosure of using a buffering salt composition to adjust the pH when

necessary. The new matter rejection in view of this claim limitation should be withdrawn.

**Claims 9 and 11**

Claim 11 has been canceled by the amendment filed herewith.

Claim 9 has been amended to delete the phrase "*wherein the bacteria contacts the sulfidic material...*" as Examiner alleges that this phrase constitutes new matter.

The foregoing amendment now recites that the bacteria may be present in the leaching fluid in step 1(a), or the bacteria may be added to the discharging fluid, which is the run-off from step (a). This limitation is adequately described to the skilled artisan on page 3, last paragraph, continuing to page 4, and original claims 2 and 3.

Applicants respectfully request withdrawal of this new matter rejection

**Lack of Enablement**

Claims 9 and 21 are rejected because the specification is allegedly only enabling for "*homocysteine and amides or esters thereof*," but not "*homocysteine and derivatives thereof*."

The claims have been amended to limit the derivatives to amides and esters.

In accordance, it is believed that the rejection is overcome, and should be withdrawn.

In addition, the foregoing amendments to claims 13-15 and 20 have deleted the offending terminology. Therefore, these rejections are also rendered moot.

**Indefiniteness**

Claims 10-12, 16 have been amended to substitute "bacteria" for "microorganisms." There is clear antecedent basis for "bacteria."

Claim 11 has been canceled.

Claims 13, and 19-20 have been amended to overcome the rejections for lack of antecedent basis.

Prior Art Rejections

The amended claims overcome all prior art rejections.

Independent claims 9 and 21 recite a method requiring a leaching fluid consisting of sulfur-containing amino acids.... The instantly claimed method employing this fluid does not encompass the carbon-containing compounds disclosed in the references.

Withdrawal of the anticipation rejection is respectfully requested.

Neither Rusin nor Wenberg nor Liu teach or suggests a method comprising such a composition. Accordingly, they cannot anticipate the claims.

For the same reason, Wenberg and Liu in combination do not render the claims obvious.

Thus, it is respectfully suggested that the rejections for alleged obviousness be withdrawn.

Applicants respectfully solicit withdrawal of all rejections and allowance of the claims.

Respectfully Submitted,

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**MARK UP OF AMENDED CLAIMS**

9.(Amended) A process for microbial leaching of a sulfidic material wherein bacteria of the genus *Thiobacillus* participate in the leaching process, and wherein the process comprises the steps of:

a) preparing an aqueous leaching fluid consisting of

~~comprising~~ at least one sulfur-containing amino acid ~~carbon-containing compound,~~  
wherein the ~~at least one carbon-containing compound~~ is selected from the group  
consisting of cysteine, methionine, and homocysteine, and amides and  
estersthereof derivatives thereof,

optionally, bacteria of the genus *Thiobacillus*,

and optionally one or more salts;

b) contacting said fluid with the sulfidic material for a length of time sufficient to  
achieve leaching, ~~and~~

wherein the bacteria ~~contact the sulfidic material either as~~ are a component of the  
sulfur-containing amino acid leaching fluid prior to performing step (b), or  
~~subsequently after removal of the sulfur-containing amino acid leaching fluid, or~~  
both, the bacteria are added to a discharging fluid, wherein said discharging fluid  
comprisethe aqueous leaching resulting from step (b).

10. (amended) The process of claim 9 wherein the leaching fluid includes the  
~~microorganisms~~ bacteria.

11. (amended) The process of claim 9 wherein the ~~microorganisms~~ bacteria. are added  
after removal of the leaching fluid.

12. (amended) The process of claim ~~9~~ 11 wherein the ~~microorganisms~~ bacteria are added in a discharging fluid.
13. (amended) The process of claim 9 wherein, the total concentration of the at least one or more one sulfur-containing amino acids or amide or ester derivatives thereof is equal to or less than ~~about~~  $8 \times 10^{-3}M$ .
14. (amended) The process of claim 9 wherein the pH of the leaching fluid is between ~~greater than about 1 and less than about 4~~.
15. (amended) The process of claim 14, wherein the pH of the leaching fluid is ~~about~~ between 1.5 to 2.
16. (amended) The process of claim 9, wherein the ~~microorganisms~~ bacteria are *Thiobacillus ferrooxidans*.
19. (amended) The process of claim 9, wherein the at least one sulfur-containing amino acid derivatives are is either an amide, an ester, or mixture thereof. ~~amides or esters~~.
20. (amended) The process of claim 13, wherein the total concentration of the sulfur-containing amino acids or amide or ester derivatives thereof is equal to or less than, ~~about~~  $8 \times 10^{-3}M$ .
21. (Amended) A process for microbial leaching of a sulfidic material, wherein the process comprises the steps of:

a) preparing an aqueous leaching fluid consisting of

~~comprising~~ at least one sulfur-containing amino acid ~~carbon-containing compound~~,  
wherein the ~~at least one carbon-containing compound~~ is selected from the group  
consisting of cysteine, methionine, and homocysteine, and amides and  
estersthereof derivatives thereof,

and optionally, bacteria of the genus *Thiobacillus*,

and optionally one or more salts;

b) contacting said aqueous leaching fluid with the sulfidic material for a period of time  
sufficient to achieve leaching.